

## **Remarks**

Claim 1-34 are pending in the present application and are rejected.

Claims 1 is amended to clarify the nature of the water included in the method of the invention. Therefore claim 1 is amended to include the limitation - “in the presence of an amount of water that is sufficient for enzymes to be hydrated and but insufficient to provide a visible separate water layer wherein the reduction is conducted in the absence of any additional solvents.” Claim 12 is amended to be consistent with claim 1 by replacing “a solvent” with “any additional solvents.” Claim 12 is further amended to replace “the product” with “a product .” Finally, claim 34 is amended to correct an obvious typo.

### **1. Rejection Under 35 U.S.C. § 112**

Claims 1 and 12 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Applicants have amended claims 1 and 12 to explain the amount of water used in the reduction of the present invention and the lack of other solvents during the reduction. Specifically, claim 1 is amended to include the limitation - “in the presence of an amount of water that is sufficient for enzymes to be hydrated and but insufficient to provide a visible separate water layer wherein the reduction is conducted in the absence of any additional solvents.” Claim 12 is amended to be consistent with claim 1 regarding the presence of water and the lack of additional solvents. These amendments makes it clear that there is some water present in the reduction, but not enough to form an observable water phase and that there are no additional solvents over the stated amounts of water.

Claim 12 is amended to replace “the product” with “a product ” thereby correcting the antecedent basis issue with this claim.

Accordingly, for at least these reasons, claims 1 and 12 are now allowable under 35 U.S.C. § 112, second paragraph.

**2. Rejection Under 35 U.S.C. § 102**

Claims 1-2, 10-13 and 14-15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Howarth et al. (Tetrahedron Letters, 2001, 42(42): 7517-7519).

The present invention provides a yeast mediated reduction for reducing an organic compound. Surprisingly, the method of the invention provides a process with higher **isolated yields** and less side product impurities than the prior art. An important feature of the present invention is the amount of water that is included in the reaction. Therefore, during the reduction, there is only enough water to hydrate the enzymes but not enough for a separate water phase to be observed. This feature of the invention is captured by the limitation “in the presence of an amount of water that is sufficient for **enzymes to be hydrated** and but **insufficient to provide a visible separate water layer.**” Claim 1 is further limited in that there are substantially no other solvents present as required by the clause “wherein the reduction is conducted in the absence of any additional solvents.”

Howarth et al. does not provide water with the characteristic features of the present invention. Howarth et al. states “we also added a quantity of methanol as an energy source to the reaction mixture.” As stated, Howarth et al. disclose a process that includes “additional solvents” to water and therefore does not disclose the process of claim 1. The Examiner has apparently misinterpreted the teachings of Howarth et al. This reference states “the inactivation of enzymes in organic solvents can be avoided.” This does not mean that organic solvents are not used. Instead, Howarth et al. provides a method in which water and organic solvents are used with the water interfering with the inactivation caused by the organic solvents. Indeed, as stated above methanol is added as an energy source, presumably to be used by the yeast.

Accordingly, for at least these reasons, claims 1-2, 10-13 and 14-15 are allowable under 35 U.S.C. § 102(b) over Howarth et al.

Claims 1, 14-15, 23, and 31-33 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kumar et al. (Tetrahedron Letters, 1991, 32(16): 1901-1904).

Kumar et al. is a deficient reference for several reasons. Although Kumar et al. states that ethyl benzoyl acetate is reacted with baker's yeast, water, and glucose, this reference fails to state the amounts and nature of the contacting water. Specifically, the Kumar et al. fails to disclose "an amount of water that is sufficient for enzymes to be hydrated and but insufficient to provide a visible separate water layer." The presence of glucose in the compositions mitigates against the water being in a sufficient amount to only hydrate the enzymes as required by the present invention. This conclusion is reasonable since the glucose must likely be dissolved in the method of Kumar et al. in order to be chemically useful. Otherwise, the glucose would have to react by a solid phase reaction which is unlikely.

Accordingly, for at least these reasons, claims 1, 14-15, 23, and 31-33 are allowable under 35 U.S.C. § 102(b) over Kumar et al.

### 3. **Rejection Under 35 U.S.C. § 103**

Claims 1 and 3-15 are rejected under 35 U.S.C. § 102(b) are being unpatentable over Liu et al (Synthetic Communications, 2001, 31(10): 1521-1526) in view of MPEP 2144.04 C.

The Examiner admits that Liu et al. discloses a process with "dried baker's yeast in a small amount of water (0.4 ml/g) in **dry petroleum ether**." As set forth above, the present invention excludes the presence of additional solvents during the reduction. Therefore, the utilization of petroleum ether by Liu et al. is not permissible under claim 1. The reliance on MPEP 2144.04 C is irrelevant to this point, since the characteristic features of the reduction step may not be altered - there cannot be additional solvents to water.

Accordingly, for at least these reasons, claims 1 and 3-15 are rejected under 35 U.S.C. § 102(b) are being unpatentable over Liu et al (Synthetic Communications, 2001, 31(10): 1521-1526) in view of MPEP 2144.04 C.

### **Conclusion**

Applicants have made a genuine effort to respond to each of the Examiner's rejections in advancing the prosecution of this case. Applicants believe that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If a telephone or video conference would help expedite allowance or resolve any additional questions, such a conference is invited at the Examiner's convenience.

The Petition fee of \$525.00 is being transmitted electronically herewith. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

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